

## **Preliminary Air Monitoring Summary**

### **CR-251 Event**

### **Prepared On Behalf Of: Colonial Pipeline**

### **Prepared By:**

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**CTEH Project #108641**

**November 04, 2016**

## Introduction

On October 31, 2016, the Center for Toxicology and Environmental Health (CTEH®) was contacted by Colonial Pipeline to initiate air monitoring for gasoline, its constituents, and combustion products. This submittal summarizes real-time air monitoring data recorded by CTEH® personnel between 11/03/2016 06:00 CDT and 11/04/2016 06:00 CDT in accordance with the CTEH® Air Sampling and Analysis Plan. Please note that all real-time data in this report has not undergone full QA/QC (quality assurance/quality control) analysis. It has been provided expeditiously to on-site contractors for informational purposes only.

## Manually-Logged Real-Time Air Monitoring

Real-time air monitoring was conducted to evaluate the potential airborne presence of gasoline-associated constituents, if any, during response operations. All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Target analytes were measured as total volatile organic compounds (VOCs), benzene, naphthalene, formaldehyde, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>2.5</sub>), and atmospheric flammability as percentage of the lower explosive limit (%LEL) using hand-held instruments such as RAESystems® MultiRAE Pro/Plus as well as Gastec® colorimetric detection tubes.

Table 1 summarizes the manually-logged real-time air monitoring readings. Maps depicting the site and locations of recorded readings are available in **Attachment 1**.

**Table 1: Summary of Manually-Logged Real-Time Air Monitoring Results<sup>1</sup>**  
November 3, 2016 06:00 CDT – November 4, 2016 06:00 CDT

Location	Analyte	Number of Readings	Number of Detections	Concentration Range <sup>2,3</sup>	Health Based Action Level
Community	Carbon Monoxide (CO)	66	0	< 0.5 ppm	12 ppm
	Formaldehyde	12	0	< 0.05 ppm	1 ppm
	Naphthalene	10	0	< 0.5 ppm	10 ppm
	Nitrogen Dioxide (NO <sub>2</sub> )	30	0	< 0.1 ppm	1 ppm
	PM <sub>2.5</sub>	68	68	0.015 – 0.19 mg/m <sup>3</sup>	0.138 mg/m <sup>3</sup>
	Sulfur Dioxide (SO <sub>2</sub> )	41	0	< 0.1 ppm	0.3 ppm
	VOCs	68	0	< 0.1 ppm	100 ppm
Site Assessment	Benzene	1	1	0.4 ppm	0.5 ppm
	%LEL	3	2	3 - 4%	3 %
	VOCs	2	2	10 -300 ppm	300 ppm
Worker Exposure	Benzene	21	4	0.05 -0.7 ppm	0.5 ppm
	Carbon Monoxide (CO)	18	3	1-2 ppm	25 ppm
	%LEL	81	2	3 - 10 %	3 ppm
	Nitrogen Dioxide (NO <sub>2</sub> )	17	0	< 0.1 ppm	0.2 ppm
	PM <sub>2.5</sub>	39	39	0.026 – 1.22 mg/m <sup>3</sup>	0.351 mg/m <sup>3</sup>
	Sulfur Dioxide (SO <sub>2</sub> )	42	0	< 0.1 ppm	0.25 ppm
	VOCs	90	43	0.1 – 3,000 ppm	300 ppm

<sup>1</sup>Please Note: The data displayed in the above table has not undergone complete QC analysis and is presented in a preliminary format.

<sup>2</sup>Maximum detections preceded by the "<" symbol are considered non-detections below the instrument limit of detection (LOD) value to the right.

<sup>3</sup>Numbers are the raw values, no correction factors have been applied.

## Weather Conditions

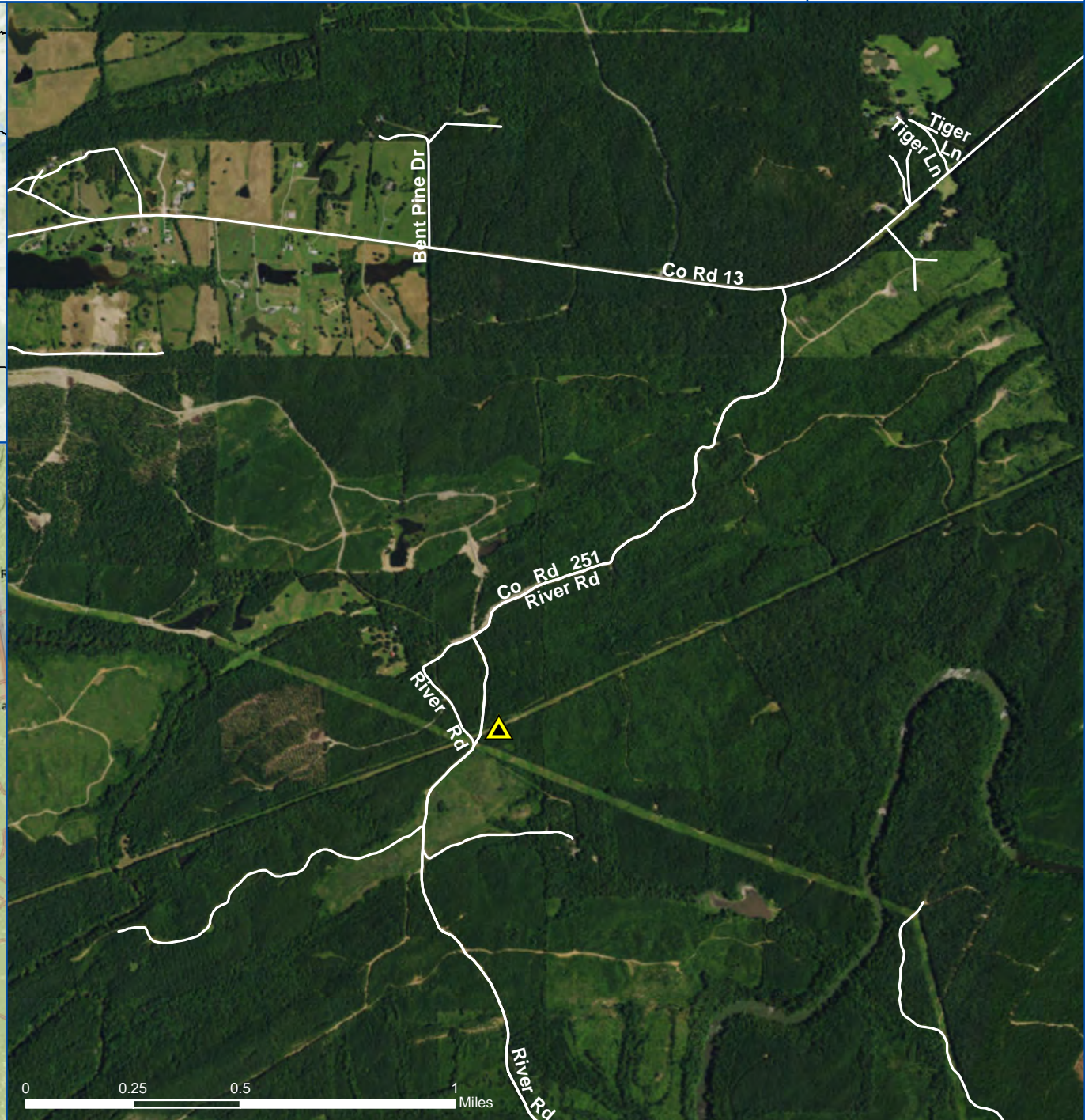
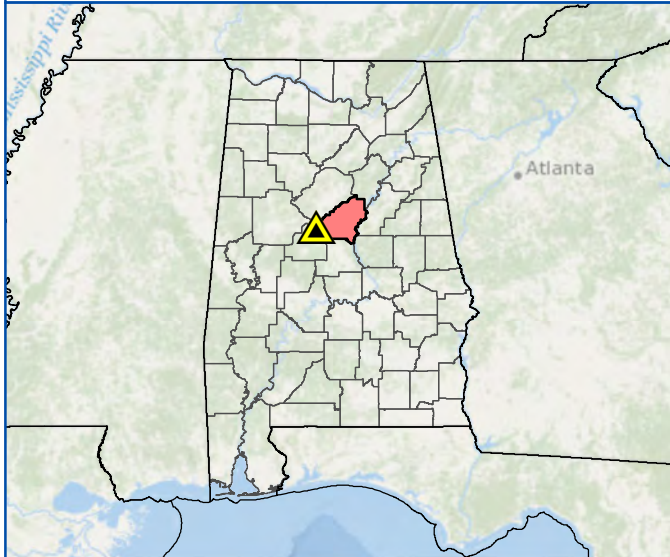
Weather conditions were acquired from the National Weather Service meteorological station located at the Bessemer Airport (KEY). Wind direction for the report period was variable but biased to the west at 0 – 10.4 mph. A wind rose depicting wind speed and direction is available in **Attachment 2**.

**Table 3: Weather Conditions for Report Period**

<b>Observation</b>	<b>Range</b>	<b>Average</b>
Relative Humidity	41 - 93 %	70 %
Temperature	62.1 – 82.9 °F	70.1 °F
Pressure	30.17 – 30.33 inches Hg	30.24 inches Hg

## Attachment 1: Site Maps









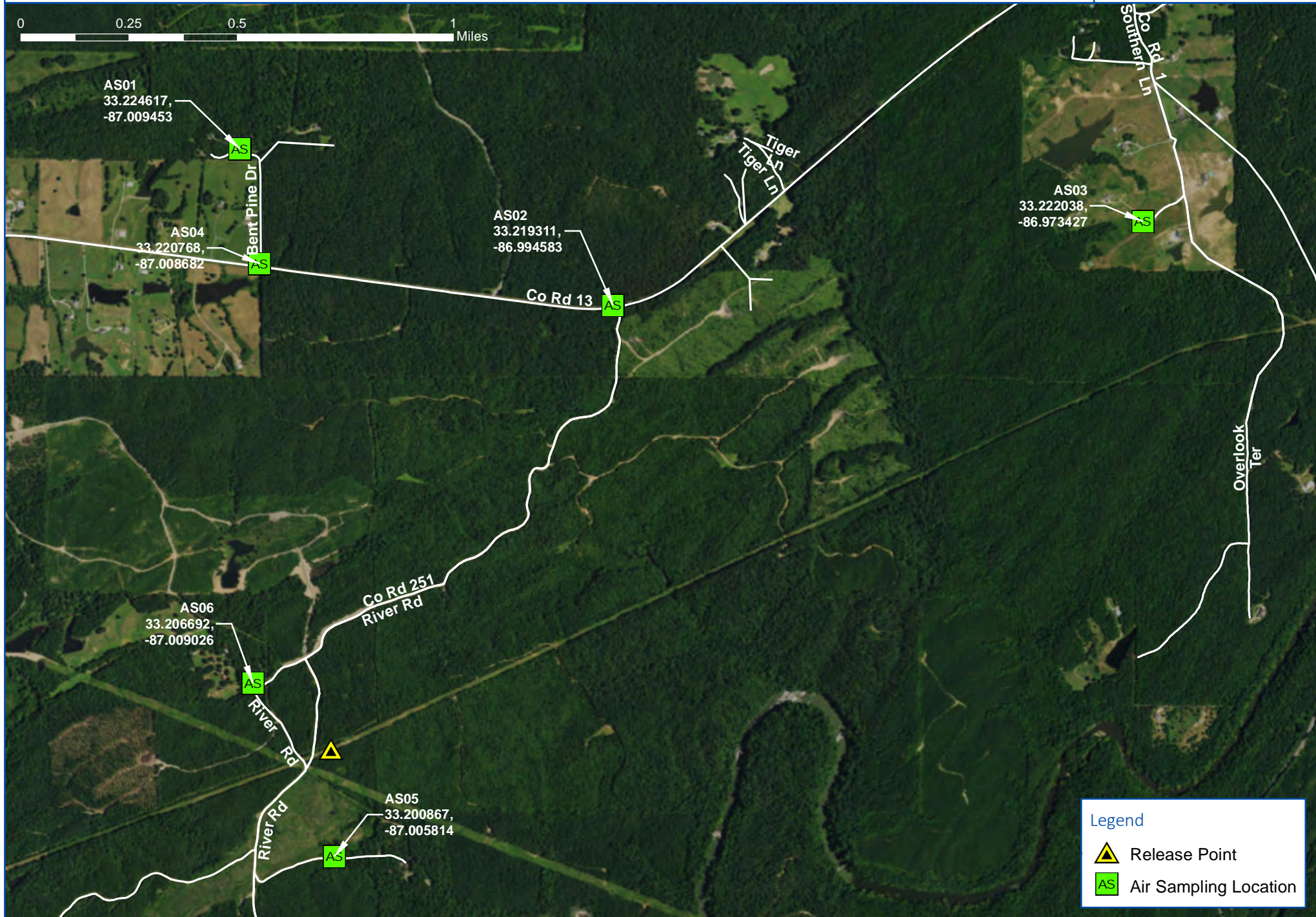
# Analytical Air Sampling Station

CR-251 Event



Project: 108641  
Client: Colonial  
City: Helena, AL  
County: Shelby

0 0.25 0.5 1 Miles



## Legend

- Release Point
- Air Sampling Location



## Legend



TOR

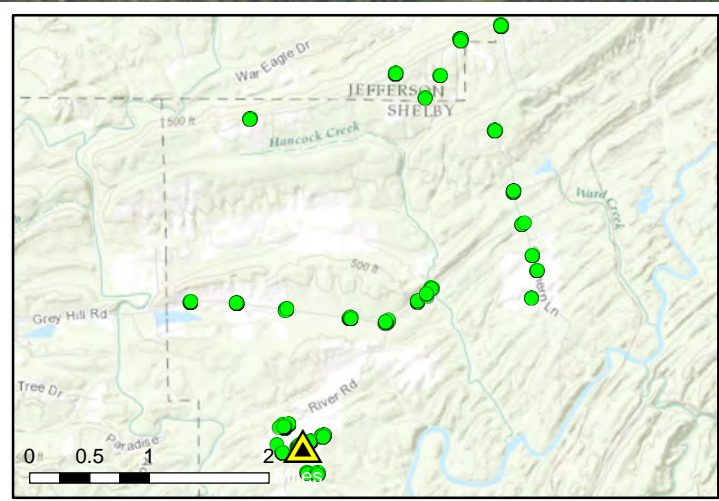
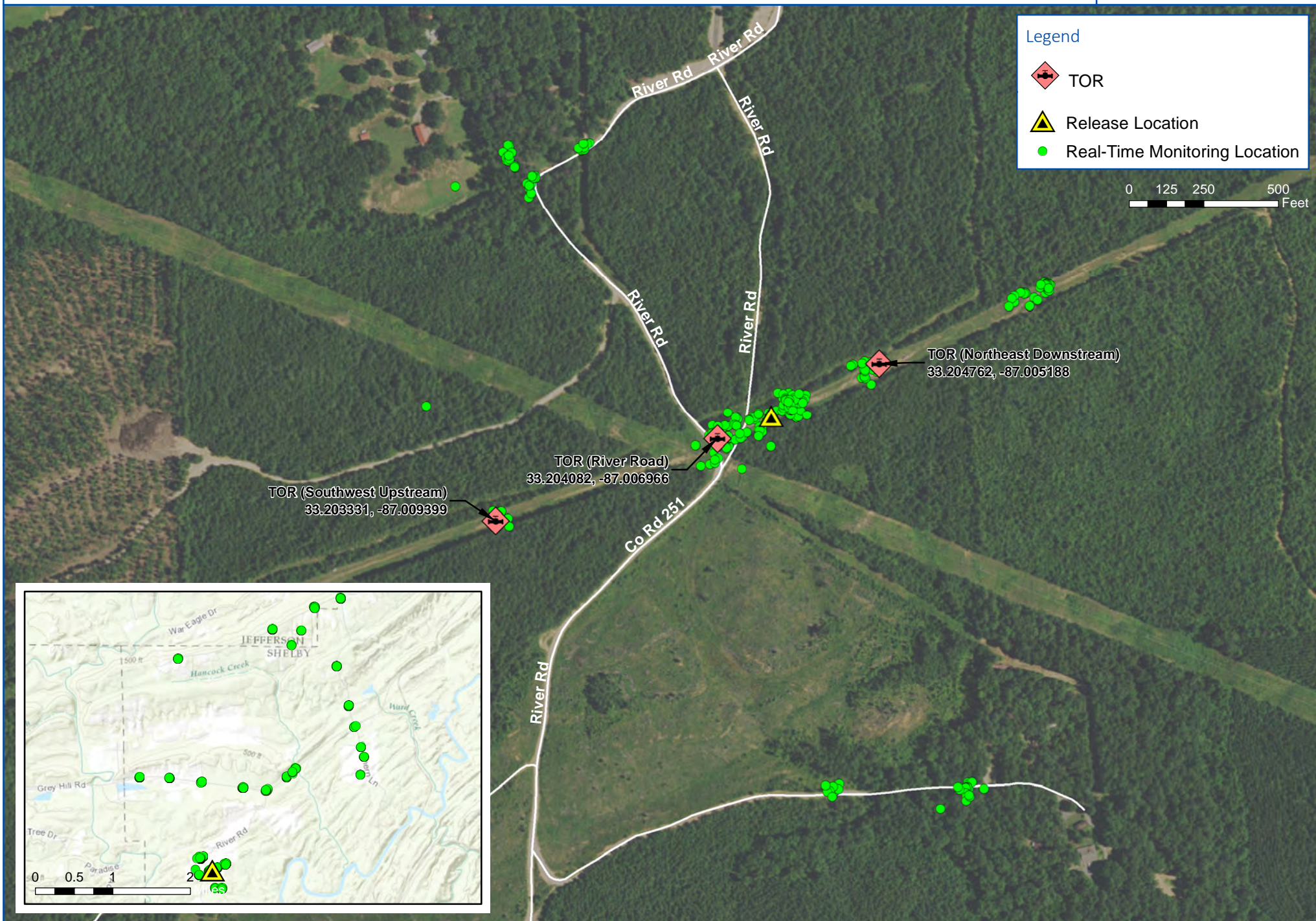


Release Location



Real-Time Monitoring Location


0 125 250 500 Feet












Legend

 Release Location

 TOR

**Benzene Concentration (ppm)**

-  < 0.05
-  0.05 - 0.5
-  0.6 - 2.5
-  > 2.5

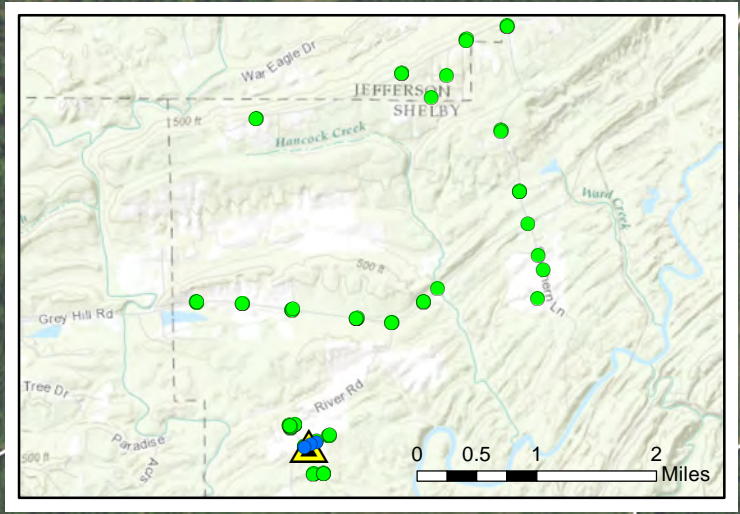
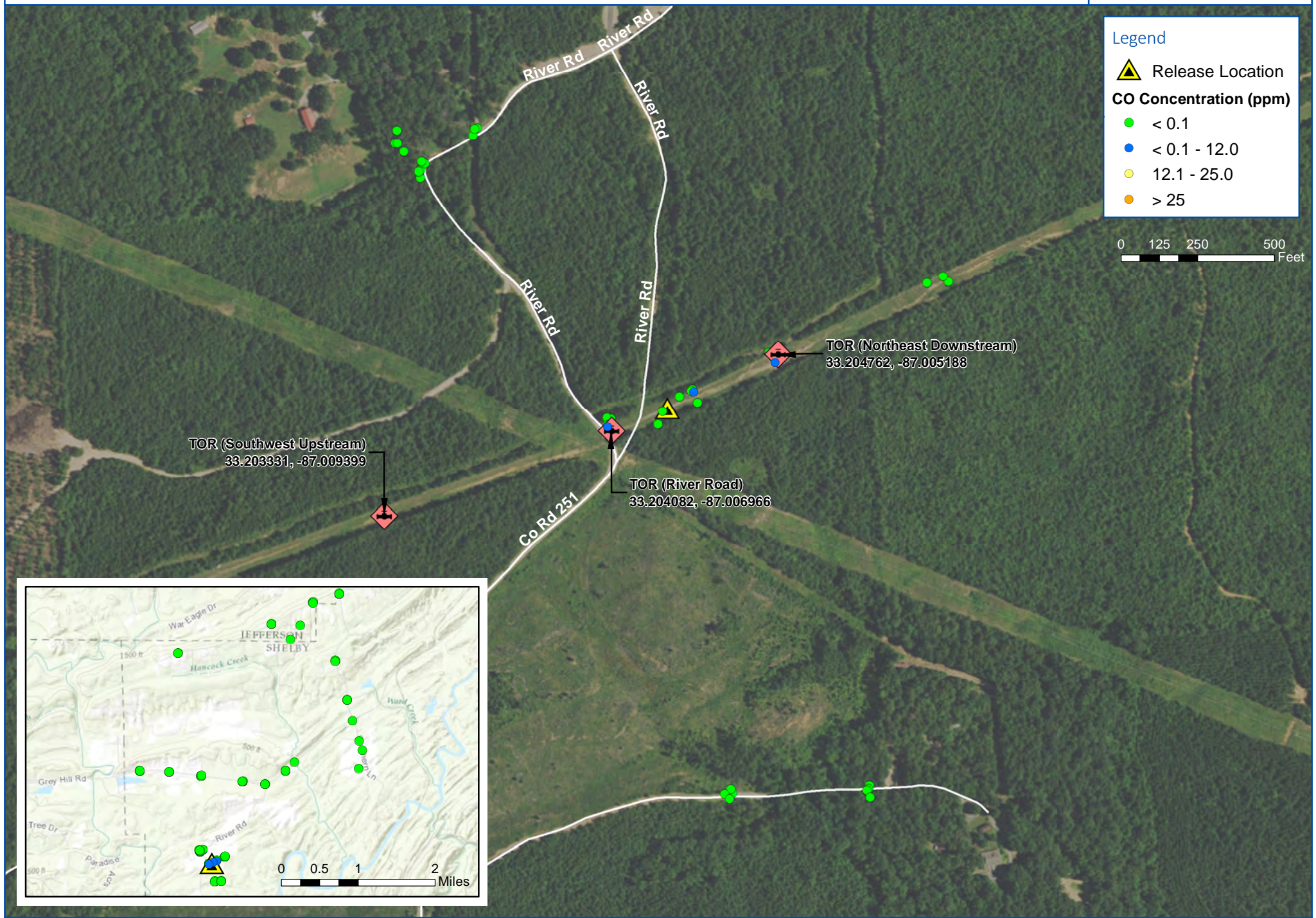


Legend

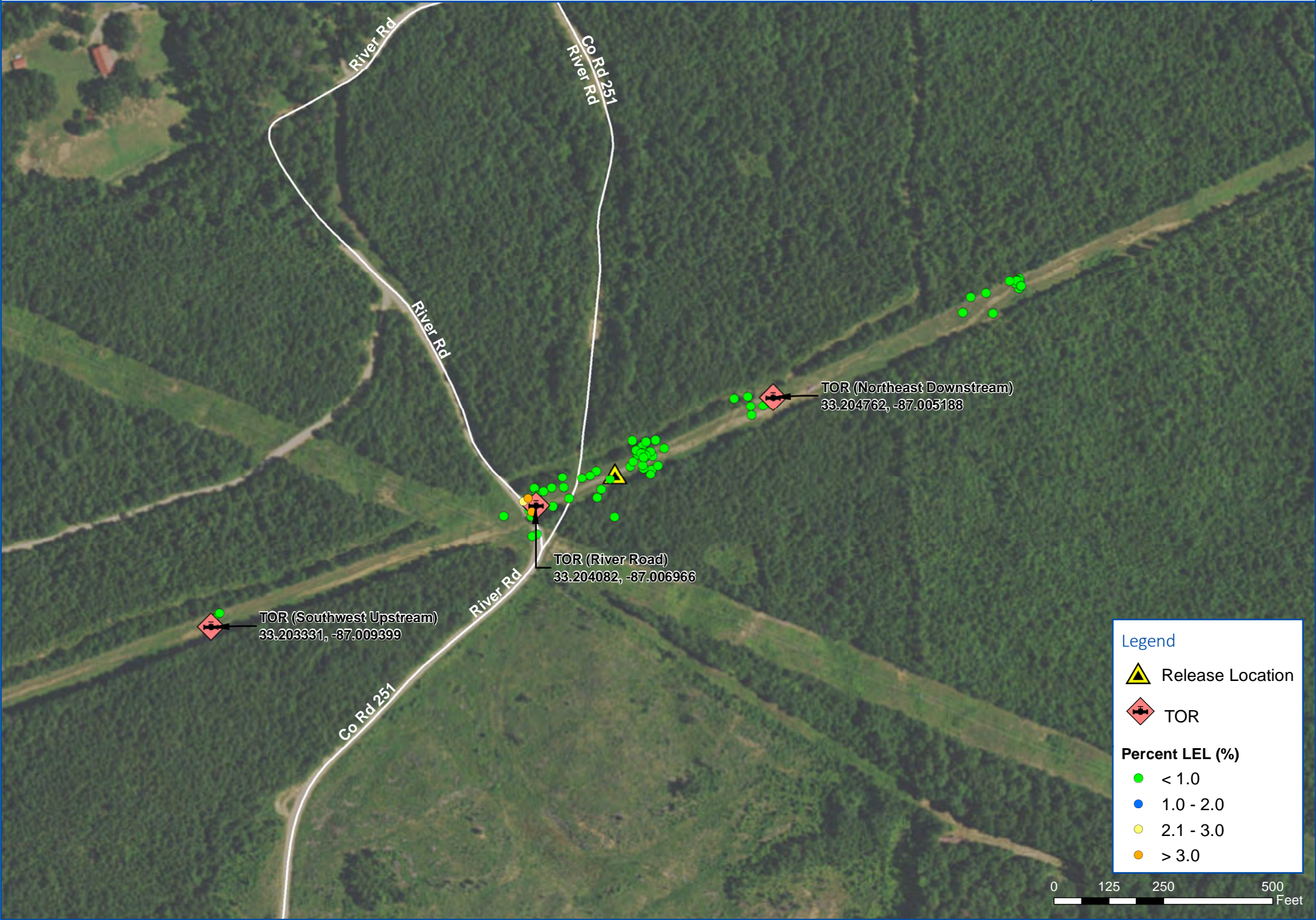
Release Location

**CO Concentration (ppm)**

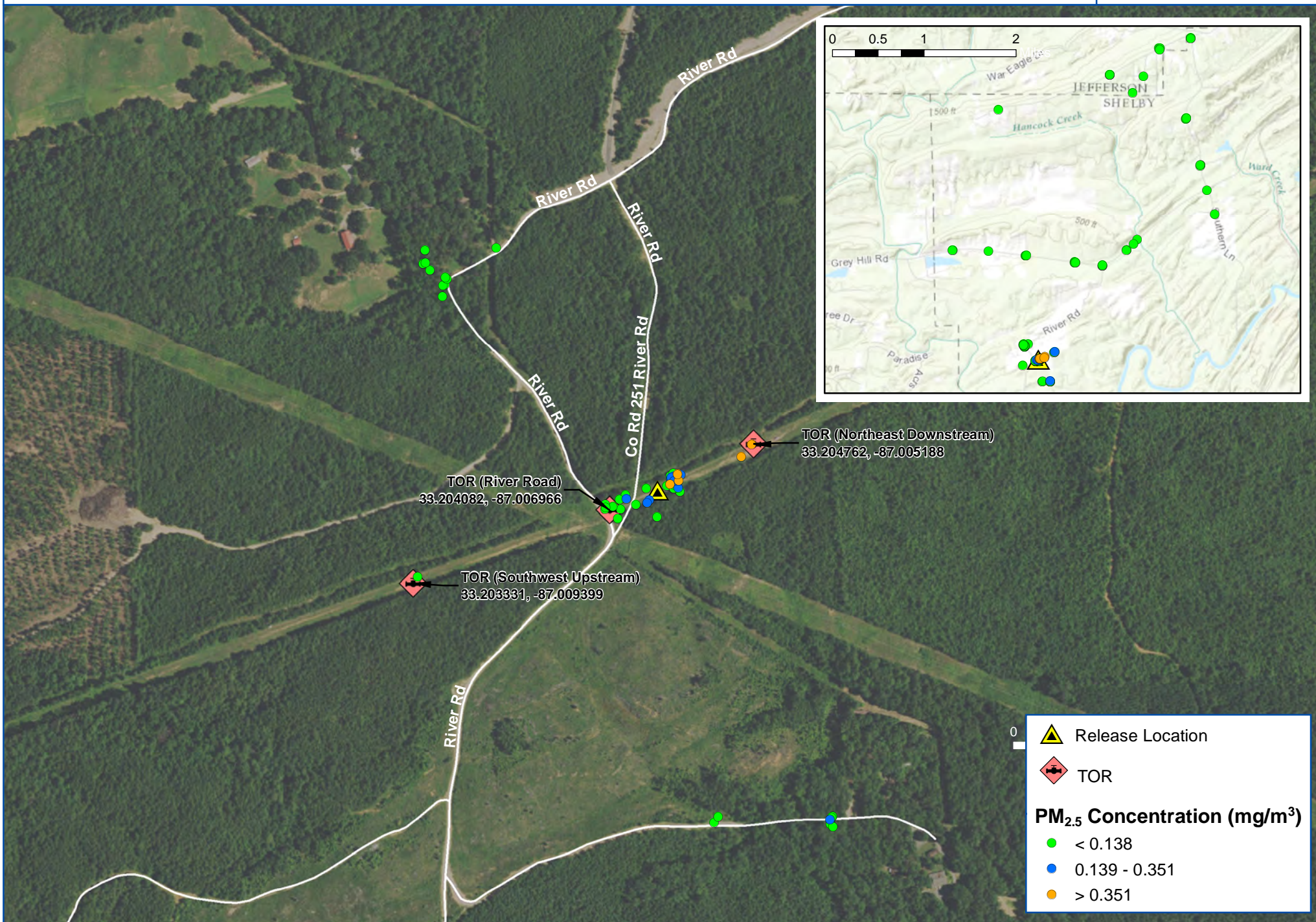
- < 0.1
- < 0.1 - 12.0
- 12.1 - 25.0
- > 25













## Legend

Release Location

TOR

## VOC Concentration (ppm)

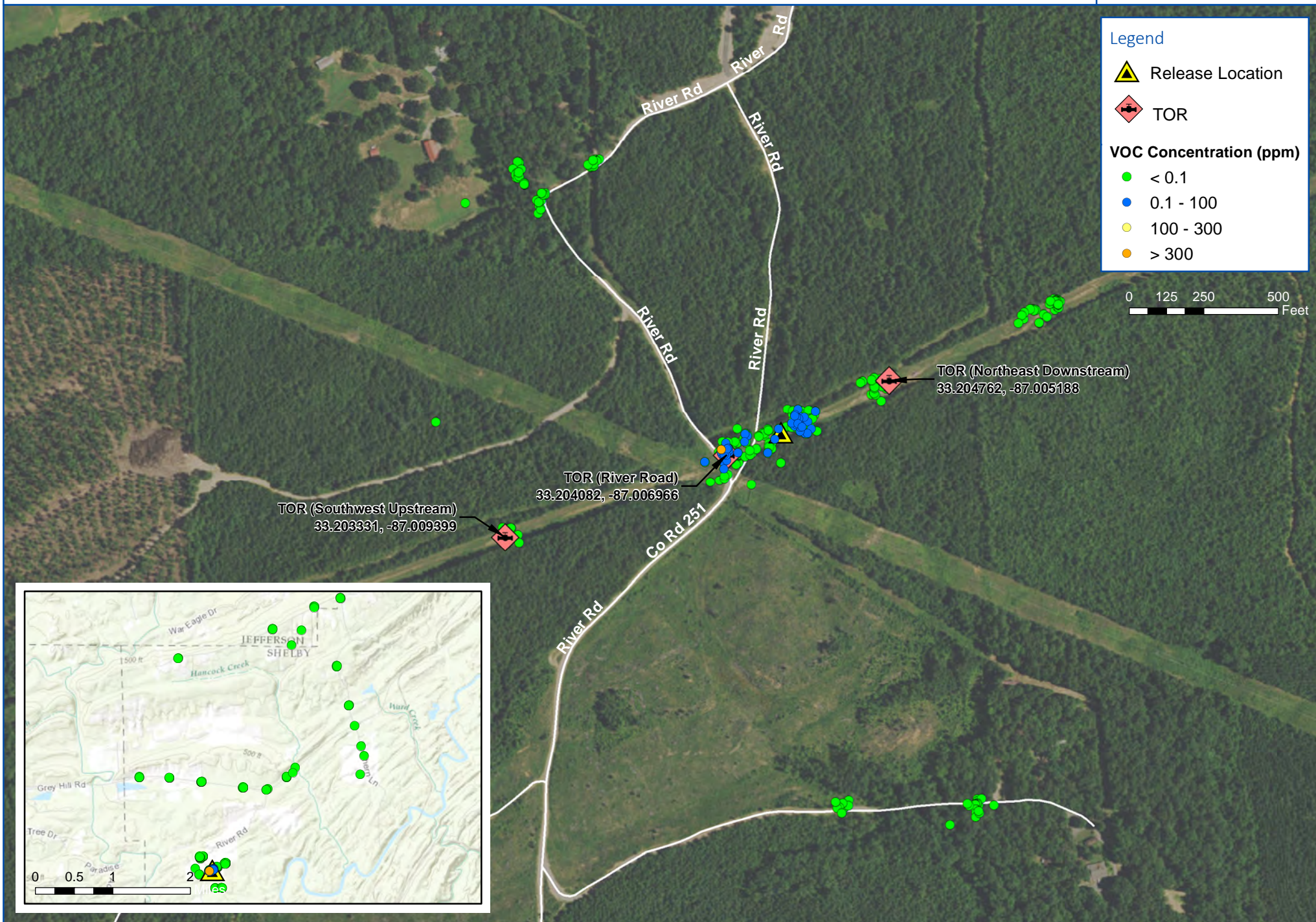
< 0.1

0.1 - 100

100 - 300

> 300

0 125 250 500 Feet





## Attachment 2: Weather Conditions

# Weather Station: KEKY 2016-11-03 to 2016-11-04

